ONTARIO MINISTRY OF ENVIRONMENT
36936000023407

OPERATING SUMMARY

1974

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1974
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MINISTRY OF THE
ENVIRONMENT

TOWN OF

PARRY SOUND

WATER POLLUTION CONTROL PLANT

TD
367
.A56
P377
1974

Parry Sound : water pollution
control plant.

81549

Ontario

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, NORTHEASTERN REGION
R. Moore

MANAGER, UTILITY OPERATIONS
J. Wesno

PARRY SOUND

WATER POLLUTION CONTROL PLANT

operated for

THE TOWN OF PARRY SOUND

by the

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

TECHNICAL SERVICES BRANCH

T. Cross, Director

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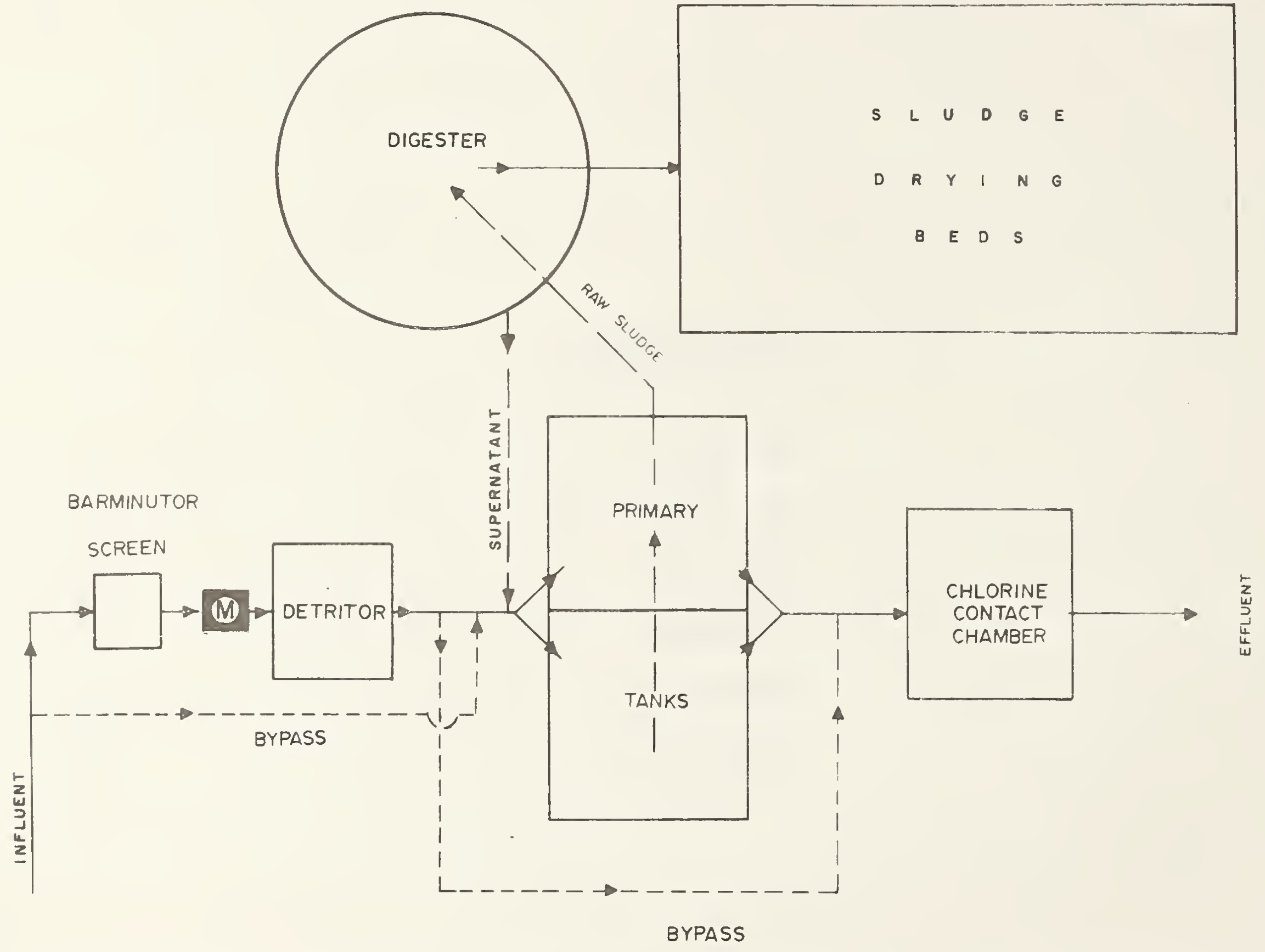
TOWN OF PARRY SOUND
WPCP



DESIGN DATA

PROJECT	Town of Parry Sound WPCP
PROJECT NO.	2-0113-62
TREATMENT	Primary
DESIGN FLOW	0.83 mgd
DESIGN POPULATION	7,500
BOD - Raw Sewage	250 mg/l
- Removal	35%
SS - Raw Sewage	200 mg/l
- Removal	35%

PRIMARY TREATMENT

Comminution

Type: Barminutor
Size: One Model C (18")

Grit Removal

Type: Dorr Detritor
Size: One 10 X 10 X 1¼'
Retention: 1.35 min

Primary Sedimentation

Type: Dorr
Size: Two 30' x 30' x 10' swd
(112,000 gallons)
Retention: 3.24 hr
Loading: Surface, 460 gal/ft^2/day
Weir, 3700 gal/ft/day

CHLORINATION

Type: W & T, Type A-731
Size: One 200 lb/day

Chlorine Contact Chamber

Size: One 25½ X 8½ X 8'
(11,150 gal)
Retention: 19.2 min

OUTFALL

- to McCurry Lake

SLUDGE HANDLING

Digestion System - single-stage

Type: Dorr draft tubes (2)
Size: One 35' dia x 20' 9" swd
(20,580 cu ft or 138,000 gal)
Loading: 0.85 lb/cu ft/mo

Drying Beds

- Four 76½ X 29'

PUMPING STATIONS

#1: River Street P.S.

Type: Flygt CP-3100
Size: Two 100, usgpm at 25'tdh

#2: Birch Street P.S.

Type: Smith & Loveless
Ejector Station
Size: Two 120, usgpm at 135' tdh

#3: Hawthorne Cres. P.S.

Type: Flygt CP-3100
Size: One, 50 usgpm at 31' tdh

#4: William Street P.S.

Type: Flygt CP-3100
Size: Two, 420 usgpm at 36' tdh

#5: Cascade Street P.S.

Type: Robert Morse (Weinman)
Size: Two, 210 usgpm at 41' tdh

#6: Seguin Street P.S.

Type: Fairbanks Morse
Size: Two, 1040 usgpm at 160' tdh

#7: Bay Street P.S.

Type: Flygt CP-3100
Size: One, 340 usgpm at 35' tdh

#8: St. Charles Crossing P.S.

Type: Smith & Loveless
Ejector Station
Size: One, 50 usgpm at 25' tdh

#9: Prospect Street P.S.

Type: Smart-Turner
Size: Two, 100 igpm at 110' tdh

'74 Review

GENERAL

The project to expand the existing 0.83 M.G.D. primary treatment plant to a 1.42 M.G.D. secondary activated sludge plant was approved by the Ontario Municipal Board and was conditionally accepted for Provincial financing.

The phosphorus removal programme was initiated in December of the year and the aim of the programme is to achieve a total phosphorus removal of 80 percent or an effluent from the plant with less than 1.0 ppm total phosphorus on an average basis.

The sewage works programme initiated by the municipality for the East Ward area was tendered during the year and flows to the plant from this area should commence in 1975.

Odour complaints in the area of McCurry Creek were negligible due to the constant application of odour control chemical at the effluent end of McCurry Lake.

The municipality has initiated renovation works at the Prospect Street and Waubeek Street pumping stations which includes standby power facilities at each station. These works should be completed in 1975.

The Utility Operations Section initiated an application for approval of modifications to Pumping Station No. 2 located at Birch Street in order to make the station serviceable on a temporary basis until the new Pumping Station No. 2 is constructed under the expansion project.

The serviced population in 1974 was approximately 5,380 and the per capita flow was 169 gallons per day.

EXPENDITURES

The total operating cost for the year was $58,601.00, which represents an increase of 39% over the previous year.

The average cost per million gallons of sewage treated was $177, which is 30% higher than the cost in 1973. The average cost per pound of BOD removed was 22 cents which is the same as the cost in 1973.

The balance in the reserve fund at December 31, 1974 was $32,498.62. During the year, a request was made by the Utility Operations Section to authorize the use of $15,000 from the Reserve Fund to provide funding for the modifications to Pumping Station No. 2.

PLANT FLOWS AND CHLORINATION

The average daily flow for the year was 910,000 gallons which represents an increase of 60,000 gallons per day or 7% over the previous year. The maximum daily flow treated at the plant during the year was 2.01 million gallons.

A total of 21.4 thousand pounds of chlorine was used during the year, representing an average dosage of 6.4 mg/l. Chlorination of the plant effluent is required for the entire year at this project.

PHOSPHORUS REMOVAL

Treatment for phosphorus removal began on December 17, 1974. Liquid alum was used as the treatment chemical and to the end of the year, 1,022 gallons were applied to the raw sewage at a dosage of about 125 mg/l. The effectiveness of this treatment will be evaluated in 1975.

PLANT EFFICIENCY

The raw sewage BOD and suspended solids concentration averages were 116 mg/l and 240 mg/l respectively. This represented a decrease of 16% in BOD and 50% in suspended solids from the previous year.

The final effluent BOD and suspended solids averages were 37 mg/l and 33 mg/l respectively which represent a BOD and suspended solids removal of 68% and 86% respectively. This is not significantly different from the previous year's figures of 64% BOD removal and 83% suspended solids removal.

The average concentrations of total phosphorus in the raw sewage and treated effluent were 5.4 mg/l and 2.7 mg/l respectively which represents a phosphorus removal efficiency of 50%.

SLUDGE DIGESTION AND DISPOSAL

A total of 382 thousand gallons of raw sludge was pumped to the digester and 117.4 thousand gallons of digested sludge was removed from the digester to the drying beds. A total of 163 cubic yards of dried sludge was removed from the drying beds by residents in the town for use as a garden fertilizer and as a soil conditioner.

The average total solids concentration in the raw sludge was 3.6%. The volatile solids content of the sludge was 59%. The digested sludge had an average total solids concentration of 12.5% and consisted of 39% volatile matter. This represents a volatile solids reduction of 55.6%.

CONCLUSIONS

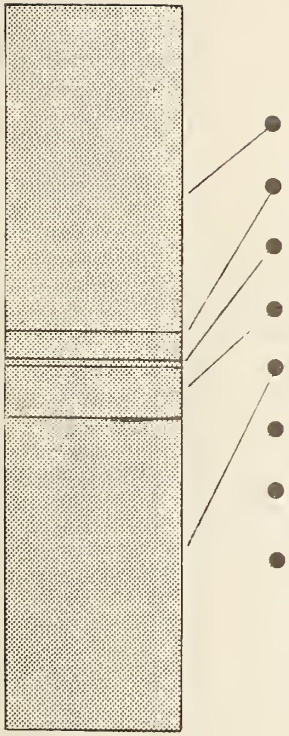
The plant is still producing a better than average quality primary effluent despite the fact that average daily flow has exceeded the design flow.

The problem of odours in the area of McCurry Creek was checked and the necessary odour control treatment was implemented in 1974.

It is anticipated that preliminary plans for the plant expansion will be completed some time late in 1975 or early 1976.

ANNUAL COSTS

1974 OPERATING COSTS



● SALARIES & WAGES	44 %
● EMPLOYEE BENEFITS	4 %
● TRANSPORTATION & COMMUNICATIONS	1 %
● SERVICES	7 %
● SUPPLIES & EQUIPMENT	44 %
● AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	
● TRANSFER PAYMENTS	
● OTHER TRANSACTIONS	

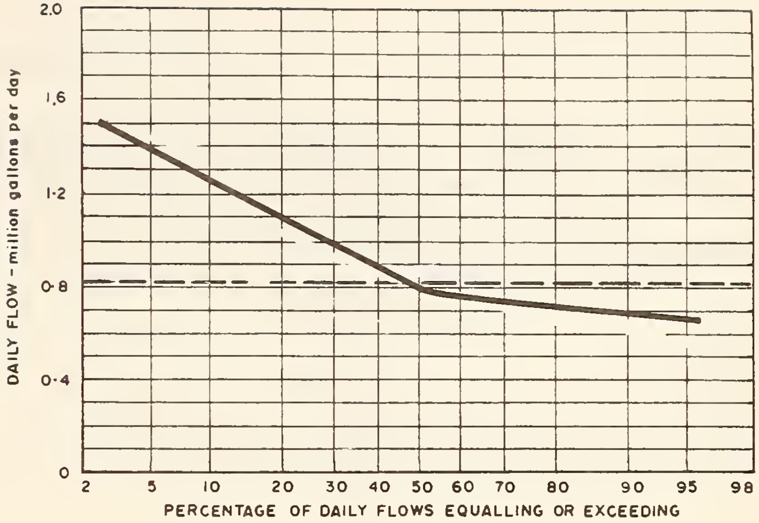
YEARLY OPERATING COSTS

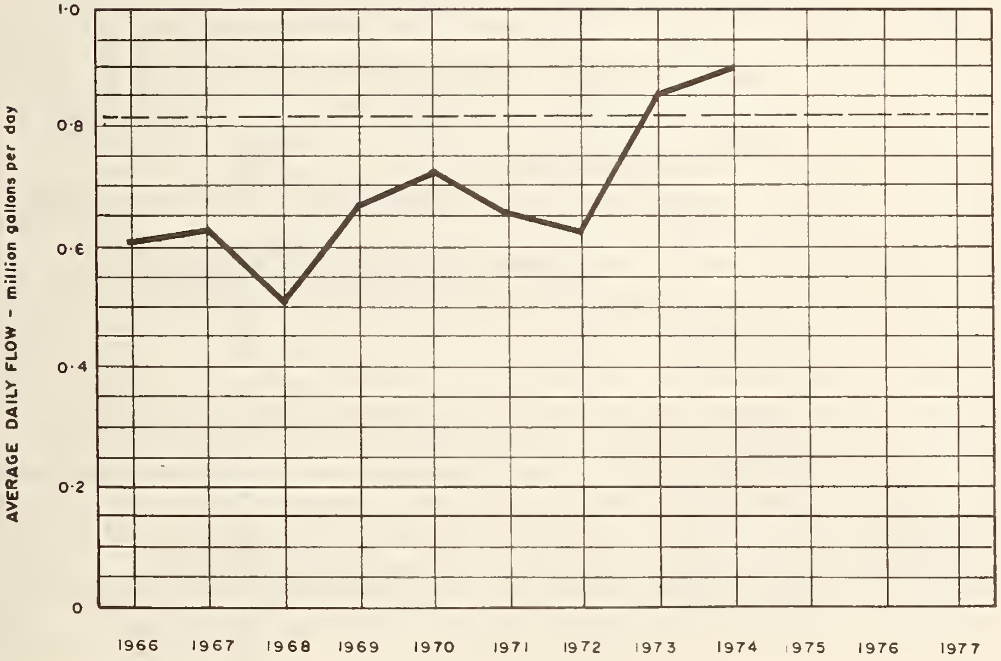
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			$/M.G.	¢/lb BOD
1969	261	33,021	127	29
1970	241	37,883	157	21
1971	254	39,360	155	21
1972	229	43,711	190	24
1973	311	42,228	136	22
1974	331	58,601	177	22

OPERATING EXPENDITURES

Regular Staff	$ 23,843	$
Casual (Unclassified) Staff	1,992	
TOTAL SALARIES AND WAGES		25,835
TOTAL EMPLOYEE BENEFITS		2,473
TOTAL TRANSPORTATION AND COMMUNICATIONS		547
Insurance	1,087	
Sludge Haulage	117	
Repairs and Maintenance	2,614	
Other Services	257	
TOTAL SERVICES		4,075
Machinery and Equipment	1,884	
Chemicals	5,137	
Utilities	13,985	
Other Supplies and Equipment	4,665	
TOTAL SUPPLIES AND EQUIPMENT		25,671
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		
TOTAL TRANSFER PAYMENTS		
OTHER TRANSACTIONS		
GRAND TOTAL	GRAND TOTAL	$ 58,601

PROCESS DATA
FLOWS



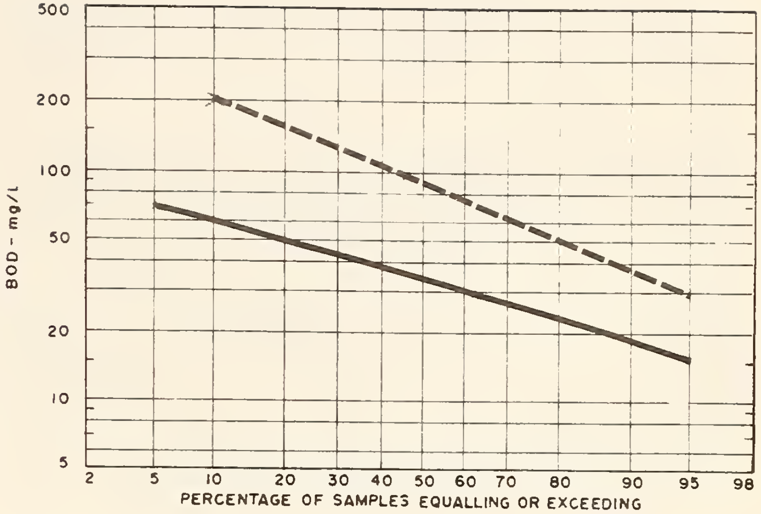


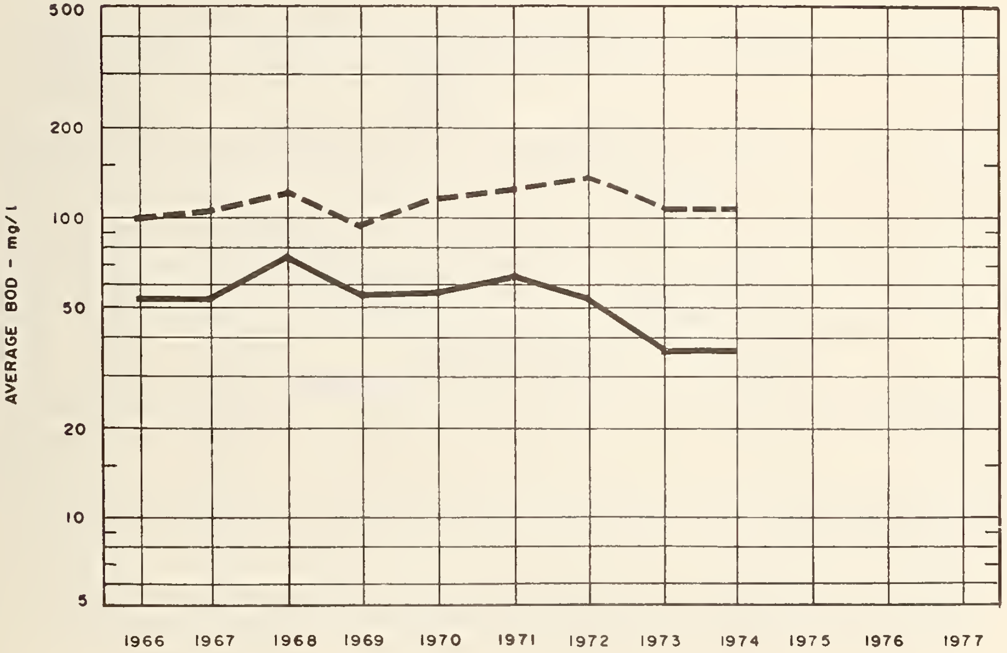
DESIGN CAPACITY - - - - - - - -

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	REDUCTION 10^3 pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	REDUCTION 10^3 pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	24.5	.79	1.40	118	38	68	19.5	200	25	88	42.7	6.1	2.6
FEB	21.2	.76	.96	120	55	54	13.8	220	25	89	41.3	5.7	2.9
MAR	30.6	.99	1.95	85	38	55	14.4	270	200	26	21.4	4.4	2.2
APR	35.8	1.19	2.01	104	33	68	25.4	135	18	87	41.8	3.4	2.2
MAY	30.2	.97	1.46	260	26	90	70.7	535	10	98	158.6	7.4	2.0
JUNE	22.4	.75	1.02	60	30	50	6.7	120	20	83	22.4	3.6	2.8
JULY	21.8	.70	.86	170	70	59	21.8	530	35	93	107.9	8.6	5.0
AUG	23.1	.74	1.22	165	47	72	27.3	358	23	94	77.4	7.3	3.5
SEPT	23.9	.77	1.42	65	46	29	4.5	165	15	91	35.9	6.8	4.0
OCT	28.9	.93	1.36	68	17	75	14.7	113	23	80	26.0	5.4	2.2
NOV	34.1	1.14	1.82	75	18	75	19.4	165	33	80	45.0	3.9	1.8
DEC	25.1	.81	.97	144	40	72	26.1	248	20	92	57.2	5.6	2.6
TOTAL	331.6	-	-	-	-	-	262.0	-	-	-	686.4	-	-
AVG.	27.5	.91	MAXIMUM 2.01	116	37	68	21.8	240	33	86	57.2	5.4	2.7
No. of Samples	-	-	-	19	18	-	-	17	17	-	-	19	19

BIOCHEMICAL OXYGEN DEMAND

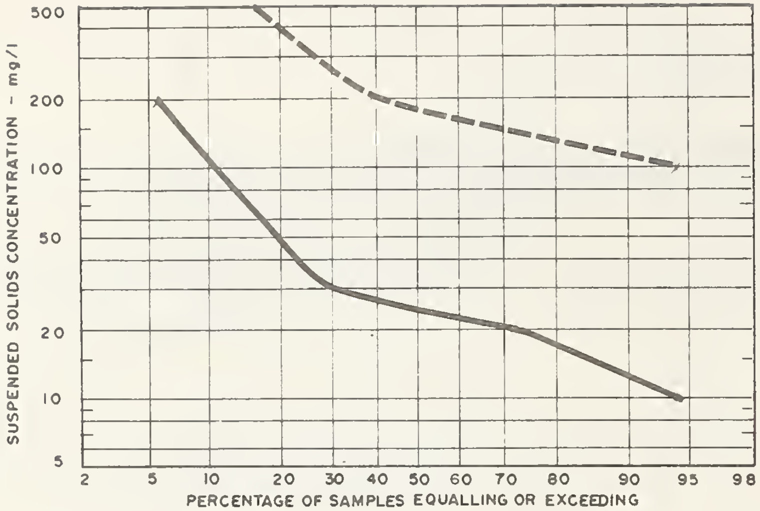


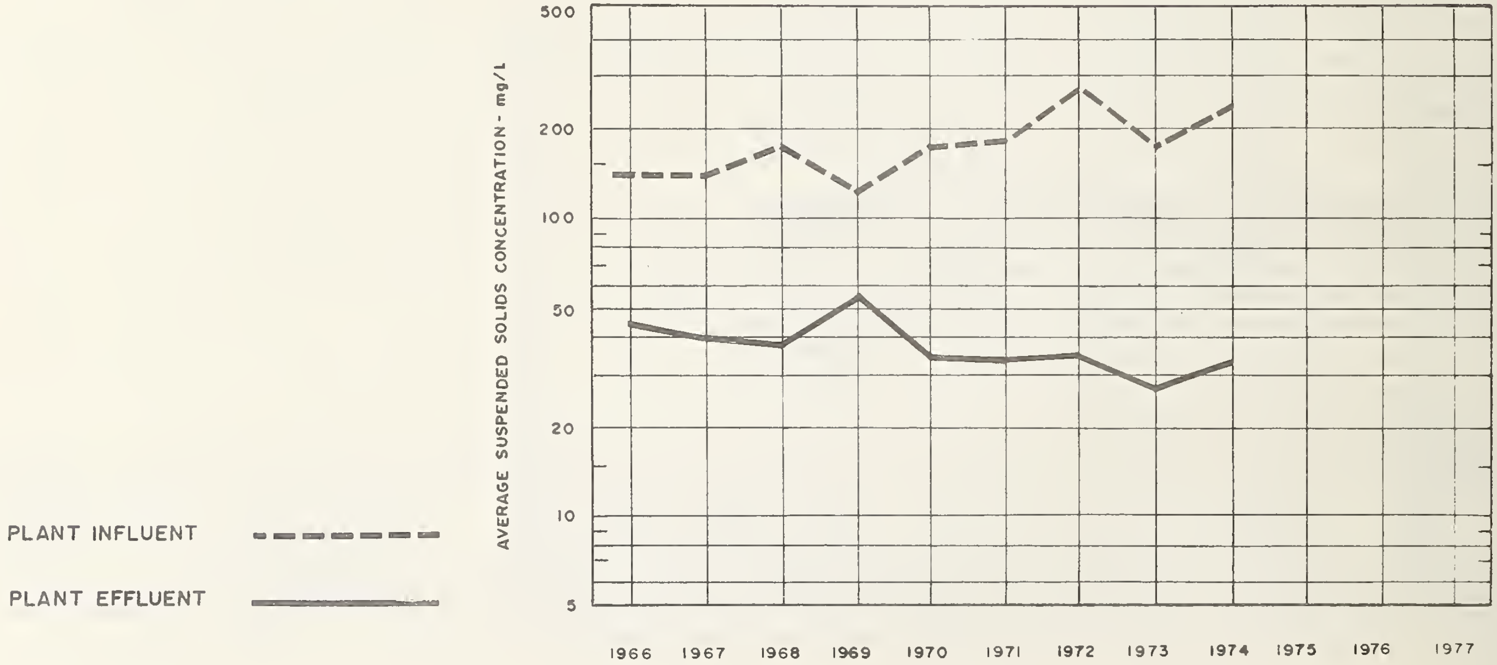


PLANT INFLUENT – – – – –

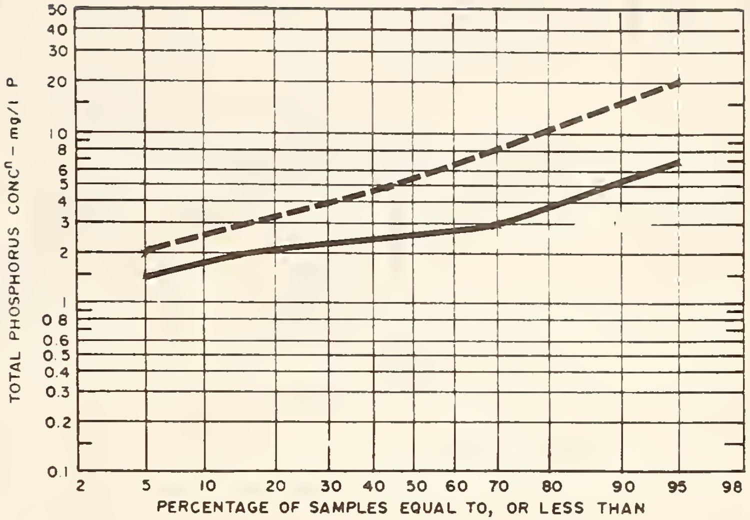
PLANT EFFLUENT ———

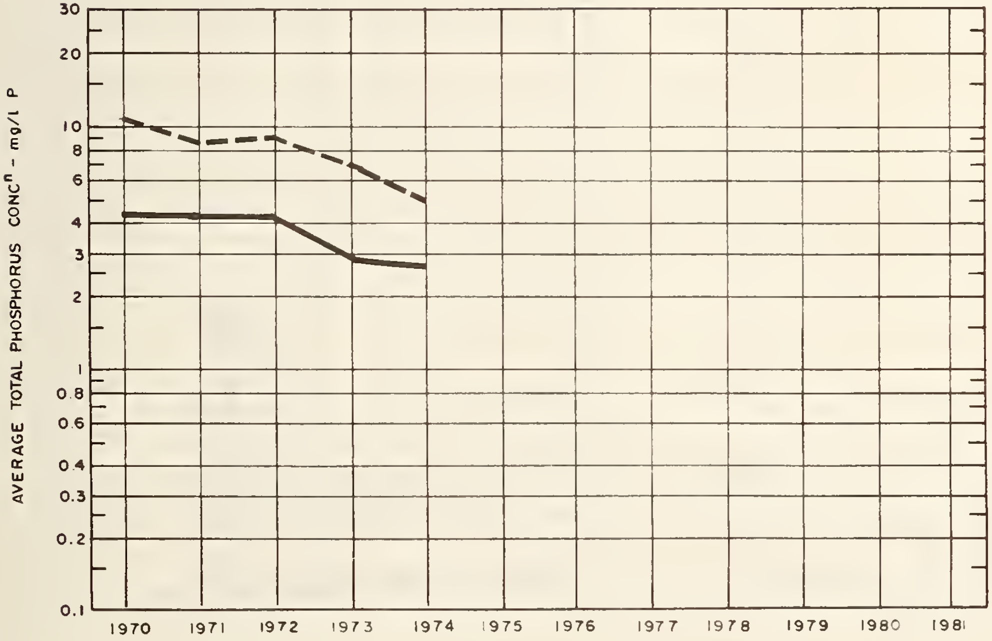
SUSPENDED SOLIDS





PHOSPHORUS

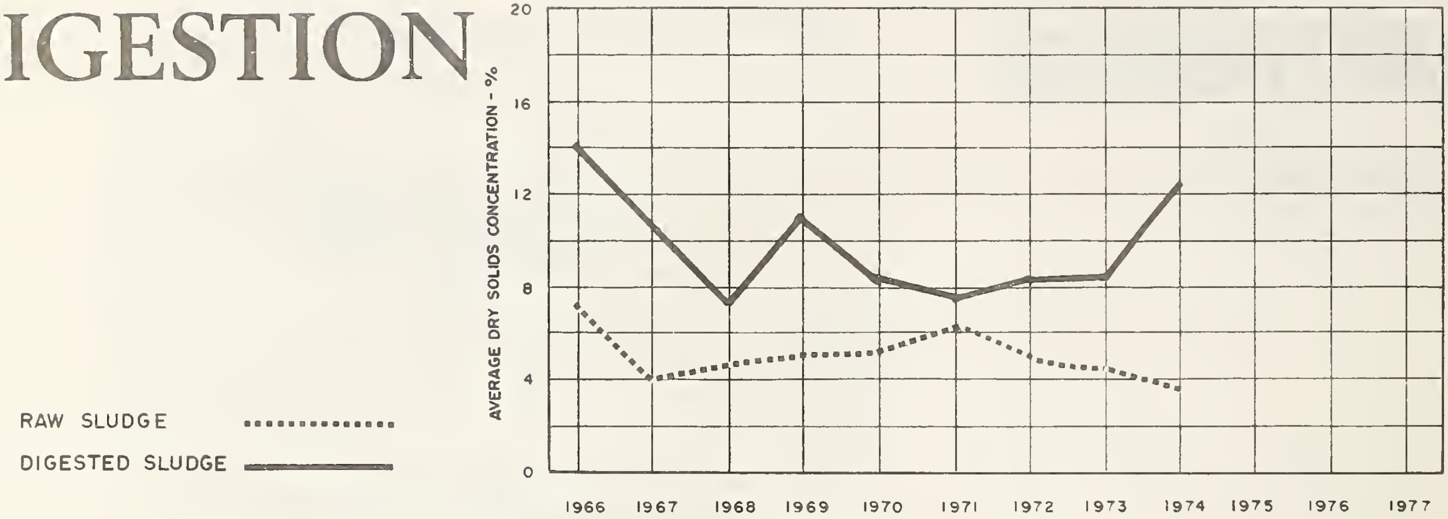


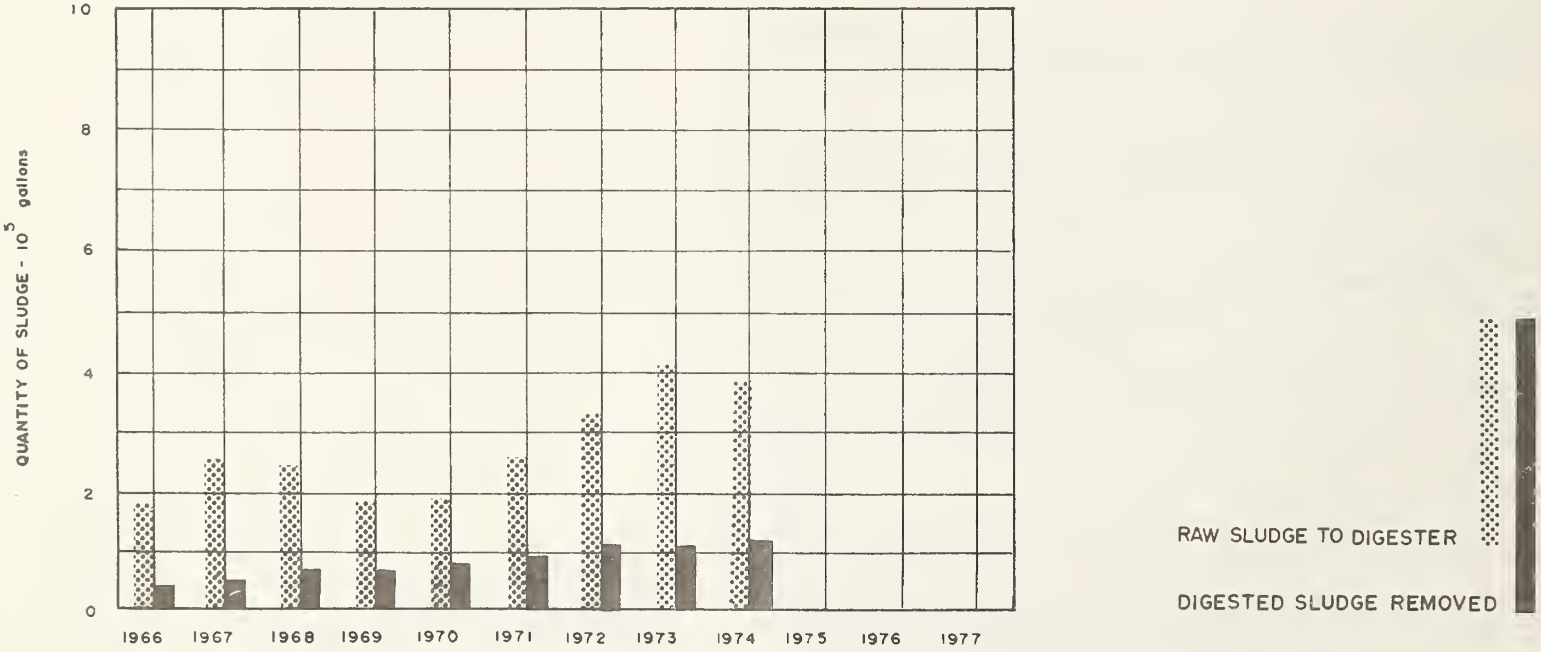


PLANT INFLUENT – – – – – –

PLANT EFFLUENT ————

DIGESTION


RAW SLUDGE
DIGESTED SLUDGE
AVERAGE DRY SOLIDS CONCENTRATION - %
20
16
12
8
4
0
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977


QUANTITY OF SLUDGE - 10^5 gallons
10
8
6
4
2
0
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED

TREATMENT DATA

	GRIT	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
				RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	
MONTH	QUANTITY REMOVED cubic feet	CHLORINE USED 10^3 pounds	AVERAGE DOSAGE mg/l	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10^3 gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	SLUDGE HAULED cubic yards
JAN	62	2.0	8.0	30	7.2	62	4.0	5.4	52	.3	
FEB	35	1.6	7.5	27	3.0	67	8.5	8.6	48	.3	
MAR	70	1.9	6.3	30	3.2	69	2.0	6.5	46	1.2	
APR	366	1.9	5.3	32	4.7	59	8.5	12.6	51	.3	66
MAY	124	1.6	5.4	34	1.2	74	3.6			.2	32
JUNE	78	1.8	8.1	32	2.6	10	8.1	26.4	17	.8	20
JULY	77	1.6	7.5	33			6.7			.3	16
AUG	122	1.7	7.5	33	4.4	69	16.0	10.6	39	.2	29
SEPT	115	1.8	7.6	32	3.7	62	17.0	14.7	34		
OCT	147	1.8	6.4	33	3.3	62	14.5	11.5	38	.2	
NOV	104	1.9	5.7	33	3.3	47	16.0	17.2	26	.2	
DEC	30	1.8	7.3	33	3.4	64	12.5	11.6	34		
TOTAL	1330	21.4	–	382	–	–	117.4	–	–	–	163
AVG.	4.0 cubic feet/mil gal	1.8	6.4	32	3.6	59	9.8	12.5	39	.4	